FORMAL DRAWINGS

Formal drawings for Figures 1-4 are attached.

Attachment: Substitute Sheet(s)

REMARKS/ARGUMENTS

In response to the Office Action mailed November 8, 2005, Applicants amend their application and request reconsideration. In this Amendment claims 2 and 5 are cancelled and new claims 6 and 7 are added so that claims 1, 3, 4, 6, and 7 are now pending.

This patent application was filed with drawings transmitted to Applicants' representative by facsimile for urgent filing. Some of the detail of the drawings is, as a result, potentially indistinct. Attached to this Response are substitute Figures 1-4 that better meet the requirements of the U.S. Patent and Trademark Office than the drawings on file in this patent application. Entry and approval of these drawings is respectfully requested.

In this Amendment claim 1 is simplified by eliminating unnecessary limitations while explaining in greater detail the construction of each active finite element. Claim 3 is expanded into claims 3, 6, and 7 to avoid alternative limitations. Claims 2 and 5 are cancelled as unnecessary to defining the invention.

The invention concerns a method of modeling muscular tissue and its movement using active finite elements. Each active finite element includes a motor element, i.e., an active element, and at least one passive element, for example, a dashpot or a spring. In the invention, a fundamental unit of each finite element is the motor element, which is active and produces, for example, expansion and contraction, and the passive elements, which reacts to the expansion or contraction, resisting or delaying movement that would otherwise be generated in response to the stresses provided by the motor element. When the model so produced is analyzed, for example, by assuming the application of stress by the motor element and a corresponding strain, the overall movement of the muscular tissue can be predicted.

In the invention, since each active finite element includes a motor element, which is generally represented by a time series function, and a passive element, which responds to stresses rather than the passage of time, each active finite element is characterized by two equations, one for the active element and one for the passive element, in the simplest

case. As explained in the dependent claims, the active finite element model is not limited to a single dimensional or two-dimensional model but can also be applied to a three-dimensional model.

Claims 1-15 were rejected as anticipated by Tsuta (JP 2001-025464). This rejection is respectfully traversed.

According to the Office Action, Tsuta discloses a method for analyzing facial deformation using finite elements that are active because Tsuta describes a time series that represents the change in face muscles over a period of time. While Applicants understand the rejection, it does not completely characterize what is described by Tsuta.

In Tsuta, an area of the face, for example, surrounding an eye, is modeled in a complicated finite element model. Each finite element has a single characteristic that integrates the characteristics of active and passive elements as a single active finite element. Thus, instead of describing each active finite element with two equations, one for an active element and one for a passive element, as in the claimed invention, a single, far more complex, equation defines the behavior of each of the active finite elements in the Tsuta model. This difference is apparent to one of skill in the art from the mathematical expressions included in Tsuta.

For anticipation, it is necessary that the prior art describe every element of a claimed invention. Based upon the explanation provided here, in combination with the simplified claims, it is apparent that the integrated finite element method employed in the prior art neither discloses nor suggests the hybrid, multiple equation characteristic active finite elements employed in the invention. Moreover, as a practical matter, it is far easier to adapt to commercial finite element analytical software the basic behavior characteristic equations that characterize the respective motor elements and passive elements of the invention than to incorporate a single, highly complex characteristic equation for each of the finite elements according to Tsuta. This advantage is or particular significance in practical application of the invention and the prior art. Because of the fundamental difference between the claimed invention and Tsuta, the anticipation rejection cannot properly be maintained.

Reconsideration and allowance of the claims now pending are earnestly solicited.

Respectfully submitted,

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